

Order Allotriognathi

Head spineless or without serrations. Mouth typically protruding, cleft very oblique. Maxillary with outer blade and with inner hind projection, which connected with its fellow below premaxillary spines; no supplemental maxillary. Teeth usually feeble or absent, never strong. Gills 4, pectinate. Pseudobranchiae well developed or absent. Branchiostegals 6. Air bladder without pneumatic duct (physoclistic). Supraoccipital developed, separating parietals; no opisthotic; or orbitosphenoid, anteriorly in contact with mesethmoid, which wholly or in part behind prefrontals. Pectoral arch suspended from skull. Vertebral column of solid centra, which co-ossified with arches. Scales, when present, thin, deciduous or reduced to scattered tubercles. Verticals fins spineless, except sometimes 1 or 2 first dorsal rays. Pectorals with horizontal or subhorizontal base. Ventrals, when present, spineless, little behind pectorals. A single dorsal. Caudal well developed or obsolete.

Widely different fishes, pelagic or bathypelagic, grouped in this order.

Analysis of sub-orders

a'. Body deeply oval, eyes normal; vertebrae normal.

b'. Ventral rays 15 to 17.

Selenichthys.

B'.² Ventral rays 8 or 9. Histichthys.

a'.² Body greatly elongated, slender; vertebrae in increased order, ribs feeble or absent.

c'.¹ Ventral rays 1 to 9. Taeniosomi.

c'.² Atelaxia.

The Atelaxia have neutral fins. See Norman, Discovery Repts., vol. 2, p. 342, 1930.?

Sub Order Selenichthys

Body deep, compressed. Mouth terminal, toothless. Skeleton well ossified. Preopercle and symplectic distinct. Post temporal forked, free. Pectoral fins rays inserted on scapula and on 3 pterygials, one of which in contact with coracoid. Vertebrae 45 or 46, ribs strong and sessile. Fins without spine, dorsal and anal long. Pelvic bones connected with scapular arch.

Family Lamprididae

Body high, oval, compressed. Caudal peduncle short, without keel. Head moderate, rather deep. Eyes moderate. Mouth terminal, bordered by premaxillary extent by maxilla also. Jaws short, equal. No. teeth in jaws, angle with grooves to permit motion of jaws. Opercular bones entire, well developed. Gill opening large, membranes free from isthmus. Gills 4, pectinated, branchial apparatus fully developed. Pharyngeals with teeth in adult. Skeleton well ossified. Vertebrae 45, of which 25 caudal. Oesophagus without spinous teeth. Air bladder large, bifurcate behind. Pyloric coeca very numerous. Scales minute or small, thin, cycloid, deciduous, somewhat larger in pectoral region. Lateral line present. Dorsal single, very high. No finlets. Anal long, uniformly low. Both dorsal and anal depressible in groove. Caudal moderately forked. Pectorals large, falcate. Ventrals thoracic, set back of pectoral bases.

Genus Lampris Retzius

Lampris Retzius, Kon. Vet. Ak. Nya Handl. Stockholm, vol. 20, p. 91,

1799. (Type Zeus guttatus Brünnich, monotypic.)

Chrysotosus Lacépède, Hist. Nat. Poiss., vol. 4, p. 586, 1803. (Type

Zeus luna Gmelin, monotypic.)

Echemythes Gistel, Naturges. Thierr., p. VIII, 1848. (Type Zeus Luna

Gmelin, virtually. Echemythes Gistel proposed to replace Chrysotosus

Lacépède.)

Body elevated, short, deep. Caudal peduncle with pit above and one below, before caudal base. Snout short, Eye little advanced from middle of head. Mouth small. Premaxillaries protractile. Jaws firm, trenchant. Tongue narrow, free, smooth. Branchiostegals 6 or 7. Lateral line greatly arched in front. Dorsal with elevated falcate lobe in front, without distinct spines. Anal without anterior lobe. Caudal with 17 branched rays. Pectoral rays 23 to 25, base of fin horizontal. Ventral rays 14 to 17.

A single species, pelagic, widely distributed. Chiefly noted for its large size and gorgeous coloration, also its rich flesh valued as food.

Lampris regius (Bonnaterre)

Zeus regius Bonnaterre, Encycl. Ichth., p. 72, pl. 39, fig. 155, 1788

(type locality : Torbay, England; on Pennant).

Lampris regius Goode and Bean, Oceanic Ichth., p. 223, pl. , fig. ,

1895 (off Le Have ridges; Japan). —Jordan and Evermann, Bull. U. S.

Fish Comm., vol. 23, pt. 1, p. 166, 1903 (1905) (Honolulu). —Jordan,

Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, art. 1, p. 132,

1913 (reference). —Jordan and Jordan, Mem. Carnegie Mus., vol. 10,

No. 1, p. 29, Dec. 1922 (Honolulu). —Fowler, Proc. Acad. Nat. Sci.

Philadelphia, 1923, p. 287 (Catalina). —Barnard, Ann. South African

Mus., vol. 21, pt. 1, p. 351, pl. 14, fig. 1, June 1925 (Table Bay;

False Bay). —Fowler, Mem. Bishop Mus., vol. 10, p. 80, fig. 17, 1928

(off Waianal beach, Oahu [dimension line wrongly 140 cm on figure,

should be 140 mm])). —Jordan, Evermanⁿ, Clark, Rep. U. S. Comm. Fisher.,

pt. 2, p. 216, 1930 (compiled).

Lampris regia Snyder, Proc. U. S. Nat. Mus., vol. 42, p. 412, 1912 (Aomori).

Scomber pelagicus (not Linnaeus) Gunner, Norsk Vid. Selsk. Skr. Trondjehm,

vol. 4, p. 92, pl. 12, fig. 1, 1768 (Norway).

Lampris pelagicus Smitt, Skandinav. Fishes, vol. 1, p. 123, fig. 34, 1892.

Zeus guttatus Brünnich, Dansk. Vid. Selsk. Skr., vol. 3, p. 398, pl. A,

1788 (type locality : Elsinore, Denmark).

Zeus luna Gmelin, Syst. Nat. Linn., vol. 1, p. 1225, 1789 (type locality :

Normandy). — Schneider, Syst. Ich. Bloch, p. 96, 1801 (compiled).

Lampris luna Günther, Cat. Fishes Brit. Mus., vol. 2, p. 416, 1860

(Devonshire). — Jordan and Snyder, Annot. Zool. Japon., vo. 3, p. 69,

1901 (reference). — Chu, Biol. Bull. St. John's Univ., Shanghai, No. 1,

p. 89, Jan. 1931 (Bleeker's reference).

Zeus stroemii Walbaum, Artedi Pisc., vol. 3, p. 398, 1792 (on Stroem,

Physik oek. besk. Soendmoer, vol. 1, p. 323, pl. 1, fig. 20, 1762; type

locality : Norway).

Zeus imperialis Shaw and Nodder, Natural. Miscellany, vol. 4, pl. 140,

1793 (type locality : Europe).

Scomber gunneri Schneider, Syst. Ichth. Bloch, p. 38, 1801 (on Gunner).

Zeus opah Shaw, General Zool., vol. 4, pt. 2, p. 287, pl. 42, 1803,

(type locality : Mediterranean; and northern seas).

Lampris lauta Lowe, Trans. Zool. Soc. London, vol. 2, p. 1837 (1841)

(type locality : Madeira) 1 Fishes of Madeira, p. 27, pl. 5, 1843

(Madeira).

Lampris immaculata Gilchrist, Marine Investig. South Africa, vol. 3,

p. 4, pl. 22, 1904 (type locality : beach at Muizenberg, in False

Bay; Table Bay).

Sub Order Histichthys

Body deep, strongly compressed. Skeleton well ossified, cranium with some cartilage. Large front cranial cavity, walls chiefly formed by frontals, floor by cartilage containing mesethmoid and orbitosphenoid ossifications; mesethmoid entirely posterior to prefrontals; epiotics separated by supraoccipital. Vertebrae 33; ribs strong, attached to well developed downwardly directed parapophyses. Post-temporal forked. Pectoral fin rays inserted on scapula and on 4 pterygials, one of which in contact with coracoid, which not expanded. Pelvic bones not articulated to coracoids. Fins with articulated rays, except first two of dorsal, which spinous. Dorsal and anal long. Ventral rays 8 or 9.

Family Veliferidae

Body deep, trunk less than head. Caudal peduncle distinct. Head short, deep, compressed. Snout short. Eye little advanced from middle of head. Teeth obsolete or absent. Interorbital high. Scales small. Dorsal and anal elevated anteriorly, gradually shorter to last rays. Caudal forked. Pectorals short. Ventrals little longer than pectorals.

One genus.

Genus Velifer Schlegel

Velifer Schlegel, Fauna Japonica, Poiss., pt. 15, p. 312, 1850.

(Atypic. Type Velifer hypselopterus Bleeker, affixed.) —

Bleeker, Verh. Akad. Weten. Amsterdam, vol. 18, p. 16, 1879.

(Type Velifer hypselopterus Bleeker, monotypic.)

Caudal part of body greatly longer than trunk. Head small, lower jaw longer. Maxillary short. Lateral line axial along side. Caudal and paired fins rather small.

Velifer multiradiatus Regan

Velifer multiradiatus Regan, Proc. Zool. Soc. London, 1907 (Oct. 8),

p. 633 (type locality : North west coast of Australia). —McCulloch,

Austral. Mus. Mem., No. 5, pt. 1, p. 138, June 29, 1929 (reference).

Velifer hypselopterus Bleeker

Velifer hypselopterus Bleeker, Acad. Néerl. Sci. Amsterdam, vol. 18,

p. 16, 1879 (on Schlegel). — Hegan, Proc. Zool. Soc. London, 1907,

p. 640, text fig. 170 (protractile mouth). — Jordan, Tanaka, Snyder,

Journ. College Sci. Tokyo, vol. 33, part. 1, p. 421, 1913 (compiled).

Velifer Schlegel, Fauna Japonica, Poiss., pt. 15, p. 312, pl. A, 1850

(type locality : seas of Japan).

Sub Order Taeniosomi

Body elongate, strongly compressed, band like. Mouth parts normal, cleft slightly. Dentition feeble. Gill openings wide. Skeleton feebly ossified, bones thin and soft. No occipital crest. Post-temporal simple. Orbitosphenoid present. Lower pharyngeals rod-like, parallel with branchial arches or absent. Pectoral fin rays inserted on scapula and on 3 pterygials, 2 or all in contact with coracoid. Pectoral girdle present, not articulated to coracoid. Vertebrae 90 to 93, ribs feeble or absent. Scales absent. Fins of flexible non-articulated rays, sometimes first dorsal ray spinous. Dorsal very long. Anal short or absent. Caudal, when present rudimentary, or not in longitudinal axis of body.

Analysis of Families

a! No anal fin; vent median in very elongate body.

Trachipteridae.

a². Anal very short; vent postmedian, far back. Lophotidae.

Family Trachipteridae

Body greatly elongated, band like. Head short. Eye large, lateral. Mouth rather small, terminal, very protractile. Teeth weak, simple. Opercles unarmed. Gill membranes separate, free from isthmus. Gills 4, slit behind fourth. Pseudobranchiae well developed, in pouch formed by fold of mucous membrane. Branchiostegals 6. Lower pharyngeals toothless. No air bladder. Pyloric coeca very numerous. Bones soft, muscles little coherent. Vertebrae numerous. Body naked, skin smooth or prickly. Lateral line present, axial on side. Dorsal single, extends from head to tail, rays all simple, not articulated or branched, though soft, fragile or flexible. No anal. Caudal rudimentary or in two parts, upper larger and fan like, directed obliquely upward from slender tips of tail. Pectorals short. Ventrals thoracic, rays elongate, never over 7 to 9, often reduced or absent with age. Vent median.

Fishes, frequently of large size, bathypelagic in most warm seas. Owing to their extreme fragility specimens are rare in collections. Called King of the Herrings.

Analysis of Genera

a¹ Caudal present; ventral rays 6 to 9.

Trachipterus.

²
a. Caudal absent; ventral reduced to single elongated ray.

Regalecus.

Genus Trachipterus Gouan

Trachipterus Gouan, Hist. Pisc., pp. 104, 153, 1770. (Type

Trachipterus gouani Gouan = Cepola trachyptera Gmelin, virtually
tautotypic.)

Trachyterus Schneider, Syst. Ichth. Bloch, p. 480, 1801. (Type Cepola
trachyptera Gmelin.)

Trachypterus Cuvier, Règne Animal, vol. 2, p. 245, 1816. (Type
Cepola trachyptera Gmelin.)

Gymnogaster Brünnich, Kon. Dansk. Selsk. Skrift. Kjøbenhavn, vol. 3, p.
408, 1788. (Type Gymnogaster arcticus Brünnich, monotypic.)

Bogmarus Schneider, Syst. Ichth. Bloch, p. 518, 1801. (Type Bogmarus
islandicus Schneider, monotypic.)

Argyctius Rafinesque, Car. Nuov. Anim. Sicil., p. 55, 1810. (Type
Argyctius quadrimaculatus Rafinesque, = Cepola trachyptera Gmelin,
monotypic.)

Nemochirus Rafinesque, Specchio delle scienze, vol. 2, pp. 100, 105,
1815. (Type Nemochirus erythropterus Rafinesque, monotypic.)

Epidesmus Ranzani, Opusc. Sci., Bologna, vol. 2, p. 137, 1818. (Type

Epidesmus maculatus = Cepola iris Walbaum, monotypic.)

Vogmarus Reinhardt, Overs. Kon. danske Vid. Selsk., Kjobenhavn, p.

XVIII, 1828-32 (1832). (Type Bogmarus islandicus Schneider =

Gymnogaster arcticus Brünnich, monotypic.)

Nemotherus Risso, in Costa, Cenni Zool. Napoli, fig. 9, 1834. (Type

Nemochirus erythropterus Rafinesque, monotypic.)

Body band like. Mouth greatly protractile. Branchiostegals 6. Row of asperities along dorsal base of lateral line. Dorsal extends entire length of back, rays less than 200. Caudal mostly above longitudinal axis of body, erected fan like. Ventrals sometimes absent, very long in young, rays 6 to 9. Young sometimes with fin rays several times longer than body and with lappet like terminal expansions.

Trachipterus altivelis Kner

Trachipterus altivelis Kner, Sitzs. Ber. Akad. Wiss. Wien, Math.-nat.

Kl., vol. 34, p. 437, pl. 1, 1859 (type locality : west coast

America, Valparaiso). — Günther, Cat. Fishes Brit. Mus., vol. 2,

p. 303, 1861 (compiled); Rep. Voy. Challenger, vol. 22, p. 72, 1887

(name). — Delfin, Cat. Peces de Chile, p. 96, 1901 (reference).

Trachipterus altivelis Delfin, Cat. Peces de Chile, p. 132, 1901 (name

in index). — Waite, Rec. Canterbury Mus., vol. 1, No. 1, p. 33,

Ap. 25, 1907 (reference).

?Trachipterus weychardti Philippi, Archiv Naturges., vol. 40, pt. 1,

p. 117, pl., 1874 (type locality :). —

Günther, Rep. Voy. Challenger, vol. 22, p. 72, 1887 (name).

Trachipterus arcticus (Brünnich)

Gymnogaster arcticus Brünnich, Nye Saml. Kon. Dansk. Vidensk. Selsk.

Skr. Kjobenhavn, vol. 3, p. 408, pl. B, figs. 1-3, 1788 (type

locality : Schneider, Syst. Nat. Bloch, p. 518, pl. 101, 1801

(northern Iceland; Iceland). Cuvier, Règne Animal, vol. 2, p.

246, 1817 (reference).

Trachipterus arcticus Günther, Cat. Fishes Brit. Mus., vol. 2, p. 305,

1861 (no locality); Rep. Voy. Challenger, vol. 22, p. 72, 1887

(name). Day, Fishes of Great Brit. Ireland, vol. 1, p. 216,

pl. 63, 18 - (British Isles). Meek, Stud. Mus. Zool. Univ.

Coll. Dundee, vol. 1, No. 6, p. 1, fig. 1-9, pl. 1, 2, 1890 (Structure).

Smitt, Scandinav. Fishes, pt. 1, p. 315, fig. 83, 1892. Goode and

Bean, Oceanic Ichth., p. 479, pl. 96, fig. 392, 1895 (compiled). —

Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 353, pl. 14, fig.

3, June 1925 (Cape Seas).

Trachipterus arcticus Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher.,

pt. 2, p. 216, 1930 (compiled).

Cepola iris Walbaum, Artedi Pisc., vol. 3, p. 617, 1788 (on Aldrovandi,
Libri 3, cap. 30; de Piscibus, pl. 17, fig. 13, 1613). — Donndorff,
Zool. Beyt., vol. 3, p. 317, 1798.

Trachypterus iris Valenciennes, Hist. Nat. Poiss., vol. 10, p. 297, Sept.
1835 (Messina; Corsica). — Günther, Cat. Fishes Brit. Mus., vol. 3, p.
303, 1861 (compiled); Rep. Voy Challenger, vol. 22, p. 72, 1887 (name),
— Moreau, Poiss. France, vol. 2, p. 560, 18 ().
— Goode and Bean, Oceanic Ichth., p. 477, pl. 95, fig. 391, 1895 (com-
piled). — Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 353,
June 1925 (Table Bay).

Trachypterus taenia Schneider, Syst. Ichth. Bloch. p. 481, 1801 (type
locality : Adriatic Sea). — Günther, Cat. Fishes Brit. Mus., p. 302,
1861 (no locality). — Canestrini, Fauna Italio, Pesci, p. 113, 1875.

Boymarus islandicus Schneider, Syst. Ichth. Bloch, pl. 101, 1801.

Bogmarus islandicus Schneider, Syst. Ichth. Bloch, p. 518, 1801 (type
locality: North Seas, Iceland).

Trachypterus bogmarus Valenciennes, Hist. Nat. Poiss., vol. 10, p. 346,

Sep. 1835 (type locality : Iceland; on Schneider; on Brünnich).

Trachypterus vogmarus Reinhardt, Overs. Kon. danske. Vid. Selsk.,

Kjöbenhavn, vol. 7, p. 71, with fig., 1838.

Gymnetrus cepedianus Risso, Ichth. Nice, p. 146, pl. 5, fig. 17, 1810

(type locality : Nice). — Cuvier, Règne Animal, vol. 2, p. 245, 1817

(reference). — Risso, Hist. Nat. Eur. Mérid., vol. 3, p. 295, 1826.

Epidesmus maculatus Ranzani, Opusc. Scient., Bologna, vol. 2, p. 133,

1818 (type locality :

Regalecus maculatus Nardo, Giorn di Fisica, ser. 2, vol. 7, p. 122,

pl. 1, fig. 1, 1824.

Trachypterus costae Cocco, (Osc. pesci Messina) Il Faro, vol. 4, p. 4,

1838 (type locality : Messina).

Trachipterus arawatae Clark

Trachipterus arawatae Clark, Trans. New Zealand Inst., vol. 13, p. 197,

fig., 1880 (1881) (type locality : Jackson's Bay). — Günther, Rep.

Voy. Challenger, vol. 22, p. 72, 1887 (name).

Trachipterus arawatae Waite, Rec. Canterbury Mus., vol. 1, No. 1, p. 18,

April 25, 1907 (reference).

Trachipterus iijimae Jordan and Snyder

Trachipterus iijimae Jordan and Snyder, Journ. College Sci., Tokyo, vol.

15, p. 311, pl. 17, fig. 9, 1901 (type locality : between Misaki and

Boshu, off mouth Tokyo Bay). — Jordan, Tanaka, Snyder, Journ. College

Sci., Tokyo, vol. 33, art. 3, p. 422, 1913 (reference).

Trachipterus iijimae Bolin, Copeia, 1933, No. 1, p. 35 (newport Beach,

Calif.).

Trachipterus ishikawae Jordan and Snyder

Trachipterus ishikawae Jordan and Snyder, Journ. College Sci., Tokyo,

vol. 15, p. 310, pl. 17, fig. 10, 1901 (type locality : off mouth

of Tokyo Bay between Misaki and Boshu. — Jordan, Tanaka, Snyder,

Journ. College Sci., Tokyo, vol. 33, art. 1, p. 421, 1913 (reference).

Trachipterus jacksonensis (Ramsay)

Regalecus jacksonensis Ramsay, Proc. Linn. Soc. New South Wales, vol.

5, pt. 4, p. 631, pl. 20, May 20, 1881 (type locality : Manly Beach,

Port Jackson, New South Wales).

Trachipterus jacksonensis var. polystictus Ogilby, Proc. Linn. Soc. New

South Wales, vol. 22, pt. 3, p. 649, 1897 (Feb. 1898) (type locality :

coast of New South Wales [= Newcastle]).

Trachipterus leiopterus Valenciennes

Trachipterus leiopterus Valenciennes, Hist. Nat. Poiss., vol. 10, p. 342,

Sep. 1835 (type locality : Naples; Nice; Toulon; Florence).

Trachipterus liopterus Günther, Cat. Fishes Brit. Mus., vol. 2, p. 304,

1861 (Mediterranean); Rep. Voy. Challenger, vol. 22, p. 72, 1887

(name). —Goode and Bean, Oceanic Ichth., p. 479, 1895 (compiled).

? Bogmarus aristotelis Risso, Hist. Nat. Eur. Mérid., vol. 3, p. 297,

1826 (type locality : Nice).

Trachypterus misakiensis Tanaka

Trachypterus misakiensis Tanaka, Journ. College Sci., Tokyo, vol. 23,

p. 52, pl. 4, fig. 2, 1908 (type locality : Misaki, Sagami). —

Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 32, p. 422,

1913 (reference).

Trachipterus rapandus Costa

Trachipterus rapandus Costa, Fauna Napoli, Pesc., pl. 9, 1844 (type

locality : Naples). — Canestrini, Fauna Italia, Pesci, p. 194, 1874.

— Günther, Rep. Voy. Challenger, vol. 22, p. 72, 1887 (name). — Goode

and Bean, Oceanic Ichth., p. 480, 1895 (compiled).

? Gymnetrus rapandus Metaxa, Ann. Med. Chirurg., Roma, fasc. 1, p. 35,

1839.

Trachipterus rex-salmonorum Jordan and Gilbert

Trachipterus rex-salmonorum Jordan and Gilbert, Proc. Cal. Acad. Sci., ser. 2, vol. 4, p. 144, pl. 9, 1894 (type locality : open sea, outside Bay of San Francisco). — Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2599, 1898 (California; Washington).

Trachipterus rex-salmonorum Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 216, 1930 (compiled).

Trachipterus rex-salmonorum Hubbs, Pap. Mich. Acad. Sci. Art. Lett., vol. 5, p. 469, 1925 (La Jolla, Catalina Isl., Calif., notes on types of seleniris and rex-salmonorum). Hubbs gives an extensive synonymy, including in it Jordan's erroneous reference to this species as Regalicus russelli.

Trachipterus altivelis (not Kner) Jordan and Gilbert, Proc. U. S. Nat. Mus., vol. , p. 52, 1881 (Santa Cruz, California).

Trachipterus seleniris Snyder, Proc. Acad. Nat. Sci. Philadelphia, vol. 60, p. 318, 1908 (type locality : Monterey, California).

Trachipterus rüppellii Günther

Trachipterus rüppellii Günther, Cat. Fishes Brit. Mus., vol. 2, p. 304,

1861 (type locality : Mediterranean); Rep. Voy. Challenger, vol. 22,

p. 72, 1887 (name). Goode and Bean, Oceanic Ichth., p. 479, 1895

(compiled).

Trachipterus semiophorus Bleeker

Trachipterus semiophorus Bleeker, Arch. Néerl. Sci. Nat., vol. 3, p.

271, pl. 12, 1868 (type locality : Amboina). —Günther, Rep. Voy.

Challenger, vol. 22, p. 72, 1887 (name). —Weber and Beaufort, Fishes

Indo Austral. Archip., vol. 5, p. 89, fig. 21, 1930 (compiled).

Trachipterus spinolae Valenciennes

Trachipterus spinolae Valenciennes, Hist. Nat. Poiss., vol. 10, p. 328,

pl. 296, Sep. 1835 (type locality : Nice). —Günther, Cat. Fishes

Brit. Mus., vol. 2, p. 300, 1861 (Atlantic Ocean); Rep. Voy

Challenger, vol. 22, p. 72, 1887 (name).

Trachipterus gryphurus Lowe, Proc. Zool. Soc. London, 1850, p. 248

(type locality : Madeira). —Günther, Cat. Fishes Brit. Mus., vo. 3,

p. 301, 1861 (copied); Rep. Voy. Challenger, vol. 22, p. 72, 1872

(name). —Goode and Bean, Oceanic Ichth., p. 478, 1895 (compiled).

Trachipterus filicauda Costa, Annuar. Mus. Zool. Napoli, vol. 1, p. 51,

pl. 1, fig. 3, 1862 (type locality : Mediterranean). —Günther, Rep.

Voy. Challenger, vol. 22, p. 72, 1887 (name).

Trachipterus trachipterus (Gmelin)

Cepola trachiptera Gmelin, Syst. Nat. Linn., vol. 1, p. 1187, 1789

(type locality : Adriatic Sea). — Walbaum, Artedi Pisc., vol. 3,

p. 616, 1792 (on Gmelin). — Lacépède, Hist. Nat. Poiss., vol. 2,

pp. 525, 531, 1800 (compiled).

Argyctius quadrimaculatus Rafinesque, Car. Nuov. Anim. Sicil., p. 55,

1810 (type locality : Sicily).

Trachipterus cristatus Bonelli, Mem. Accad. Torino, vol. 24, p. 485,

pl. 9, 1819 (type locality :

— Günther, Cat. Fishes Brit. Mus., vol. 2, p. 301, 1861 (note). —

Moreau, Poiss. France, vol. 2, p. 567,

— Günther, Rep. Voy Challenger, vol. 22, p. 72, 1887 (name). —

Goode and Bean, Oceanic Ichth., p. 479, 1895 (compiled).

Trachipterus bonnellii Valenciennes, Hist. Nat. Poiss., vol. 10, p. 331,

Sep. 1835 (on Bonelli).

Trachipterus falx Valenciennes, Hist. Nat. Poiss., vol. 10, p. 333,

Sep. 1835 (type locality : Bay Algeciras; Messina).

Gymnetrus mullerianus Risso, Archiv Naturges., vol. , pt. , p. 13,

1840.

Trachipterus trachyurus Poey

Trachipterus trachyurus Poey, Mem. Hist. Nat. Cuba, vol. 2, p. 420,

1861 (type locality : Cuba). — Günther, Rep. Voy. Challenger,

vol. 22, p. 72, 1887 (name). — Jordan and Evermann, Bull. U. S.

Nat. Mus., No. 47, pt. 3, p. 2600, 1898 (compiled).

Trachipterus trachyurus Jordan, Evermann, Clark, Rep. U. S. Comm.

Fisher., pt. 2, p. 216, 1930 (reference).

Genus Regalecus Ascanius

Regalecus Ascanius, Icon. Rerum. Nat., vol. 2, p. 5, 1772. (Type

Regalecus glesne Ascanius, monotypic.)

Gymnetrus Bloch, Naturges Ausl. Fische, vol. 9, p. 95, 1795. (Type

Gymnetrus hawkenii Bloch, monotypic.)

Cephalepis Rafinesque, Indice Itt. Sicil., pp. 31, 54, 1810. (Type

Cephalepis octomaculatus Rafinesque, monotypic.)

Xypterus Rafinesque, Indice Itt. Sicil., pp. 43, 59, 1810. (Type

Xypterus imperati Rafinesque, monotypic.)

Xiphichthys Swainson, Nat. Hist. Animals, vol. 2, p. 259, 1839. (Type

Xiphichthys russellii Swainson, monotypic.)

Body greatly elongated, exceedingly compressed, ribbon-like, trunk shorter than tail, which tapers to slender point. Head small, compressed. Snout truncated. Eye nearly median, high, small. Mouth cleft nearly or quite vertical, greatly protractile. No teeth. No air bladder. Pyloric coeca numerous. Five rows of tubercles on side. Lateral line not spiny. Dorsal with 100 to 400 or more rays, front 8 to 15 rays strong and elongated. Caudal absent, except in young. Pectoral rays 11 to 13. Ventral reduced to single elongate ray, dilated at end

Large, singular fishes, little known and usually found washed ashore after storms. They apparently dwell in deep water. The extreme delicacy of the flesh, as well as the feeble skeleton, account for most all of these fishes found greatly damaged or mutilated. From such examples many nominal species have been erected. Quite likely all are really to be referred to a single species, as here admitted.

Great changes take place with age, as the young may have the front dorsal, ventral and the caudal rays, greatly elongated or filamentous. Thus the caudal is symmetrical in the young, becomes divided with growth and as its lower rays may finally break off the upper section of the fin results eventually in an upturned fan-like fin.

Smitt says "The King of the Herrings lives in very deep water, its species being perhaps identical in all the oceans; but of its usual manner of life we know nothing. Occasionally it appears at the surface, and in the imagination of the sailor takes the form of the great Sea-serpent. The tales of the great Sea-serpent may probably be explained by a variety of different causes - tumbling dolphins, enormous cuttle fish, specimens of Selache (basking Shark) floating and resting at the surface, or even floating wreckage. But in the cases where the sea-serpent appears with crest erect, the explanation seems to lie in the appearance and death struggles of the King of the Herrings at the surface of the ocean."

Regalecus glesne Ascanius

Regalecus glesne Ascanius, Icon. Rerum, vol. 2, p. 5, pl. 11, 1772

(type locality : Glesvaer, Norway). — Müller, Zool. Danicae, Prodr.,

pp. XX, 40, 1776 (Norway). — Bonnaterre, Tabl. Ichth., p. 40, pl. 86,

fig. 358, 1788 (copied). — Lacépède, Hist. Nat. Poiss., vol. 2, pp.

214, 216, 1800 (Norway). — Shaw, General Zool., vol. 4, pt. 2, p.

193, pl. 27, 1803 (compiled). — Cuvier, Regne Animal, vol. 2, p. 244,

1817 (reference); ed. 2, vol. 2, p. 220, 1829 (reference). — Gray,

Proc. Zool. Soc. London, 1849, p. 52 (Redcar); Ann. Mag. Nat. Hist.,

vol. 5, p. 501, 1849. — Günther, Cat. Fishes Brit. Mus., vol. 3, p.

310, 1861 (reference) [Rep. Voy Challenger, vol. 22, p. 74, 1887

(records of all nominal forms)] . — Smitt, Scandinav. Fishes, vol. 1,

p. 322, fig. 87, 1892. — Goode and Bean, Oceanic Ichth., p. 480, pl.

, fig. 395, 1895 (compiled). — Jordan and Evermann, Bull. U. S.

Nat. Mus., No. 47, pt. 3, p. 3596, 1898 (compiled). — Waite, Rec.

Canterbury Mus., vol. 1, No. 1, p. , April 25, 1907 (reference).

— Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 354, pl. 14,

fig. 2, June 1925 (Table Bay, Atlantic coast Cape Peninsula, False Bay,

Mossel Bay, Knysna). — McCulloch, Austral. Mus. Mem., No. 5, pt. 1, p.

138, June 29, 1929 (Queensland, New South Wales, Tasmania, Victoria,

New Zealand).

Ophidium glesne Ascanius, Nye Sam. Kon. Danske Vid. Selsk. Skrift., vol. 3, p. 421, 1788.

Regalecus remipes Brünnich, Nye Sam. Kon. Danske Vid. Selsk. Skrift., vol. 3, p. 414, pl. B, figs. 4-5, 1788 (type locality : Norway).

Gymnetrus remipes Schneider, Syst. Ichth. Bloch, p. 482, 1801 (copied).

—Valenciennes, Hist. Nat. Poiss., vol. 10, p. 366, Sep. 1835 (compiled).

Cepola gladius Walbaum, Artedi Pisc., vol. 3, p. 617, 1792 (on Spada marina Imperato, Hist. Nat., pp. 899, 908, 1695; type locality : Naples). —Donndorff, Zool. Beytr., vol. 3, p. 317, 1798.

Gymnetrus gladius Valenciennes, Hist. Nat. Poiss., vol. 10, p. 352, pl. 298, Sep. 1835 (compiled).

Regalecus gladius Günther, Cat. Fishes Brit. Mus., vol. 3, p. 308, 1861

(Bermudas). —Canestrini, Fauna Italia, Pesci, p. 195, 1875 (Nice).

—Thompson, Mar. Biol. Rep. South Africa, vol. 4, p. 153, 1918 (compiled).

Gymnetrus hawkenii Bloch, Naturg. Ausl. Fische, vol. 9, p. 95, pl. 423,

1795 (type locality : Goa). —Lacépède, Hist. Nat. Poiss., vol. 3, pp.

379, 380, 1802 (Goa). — Shaw, General Zool., vol. 4, pt. 2, p. 197,

1803 (on Bloch). — Valenciennes, Hist. Nat. Poiss., vol. 10, p. 372,

Sep. 1835 (copied).

Gymnetrus hawkinsii Schneider, Syst. Ichth. Ind. Bloch, p. 481, 1801

(copied).

Gymnetrus ascanii Lindroth, Kon. Vet. Akad. Nya Handl. Stockholm, vol.

19, p. 288, 1798 (type locality : Norway).

Gymnetrus grillii Lindroth, Kon. Vet. Akad. Nya Handl. Stockholm, vol.

19, p. 291, pl. 8, 1798 (type locality : Norway). — Schneider, Syst.

Ichth. Bloch, p. 422, 1801 (copied). — Cuvier, Règne Animal, vol. 2,

p. 220, 1817 (reference). — Valenciennes, Hist. Nat. Poiss., vol. 10,

p. 370, Sep. 1835 (compiled).

Regalecus grillii Günther, Cat. Fishes Brit. Mus., vol. 3, p. 311, 1861

(copied).

Cephalepis octomaculatus Rafinesque, Indice Ittiol. Sicil., pp. 31, 54,

1810 (type locality : Sicily).

Xypterus imperati Rafinesque, Indice Ittiol. Sicil., pp. 43, 59, 1810

(type locality : Sicily).

Regalecus rex halecum Cuvier, Règne Animal, vol. 2, p. 244, 1817 (type

locality : "du Nord par les pêcheurs norvégiens" [= Norway]).

Gymnetrus russelii Cuvier, Règne Animal, vol. 2, p. 244, 1817 (on

Russelian gymnetrus Shaw, General Zool., vol. 4, pt. 2, p. 195, pl. 28,

1803 = _____ Russell, Fishes of Coromandel, vol. ,

p. , pl. , 18 ; type locality : Vizagapatam); ed. 2, vol. 2,

p. 220, 1829 (on Shaw). — Valenciennes, Hist. Nat. Poiss., vol. 10,

p. 377, Sep. 1835 (copied). — Goode and Bean, Oceanic Ichth., p. 480,

1895 (name).

Regalecus russellii Günther, Cat. Fishes Brit. Mus., vol 3, p. 311, 1861

(compiled). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol.

33, art. 1, p. 422, 1913 (reference).

Gymnetrus longiradiatus Risso, Hist. Nat. Europ. Mérid., vol. 3, p. 296,

pl. 14, fig. 43, 1826 (type locality : Nice).

Gymnetus telum Valenciennes, Hist. Nat. Poiss., vol. 10, p. 361, pl. 299,

Sep. 1835 (type locality : Mediterranean).

Regalecus argenteus Parker, Trans. Zool. Soc. London, vol. 12, p. 5,
pl. 2-C, 1886 (Morphology).

Regalecus pacificus Haast, Trans. New Zealand Inst., vol. 10, p. 247,
1878 (type locality :

—Waite, Rec. Canterbury Mus., vol. 1, No. 1, p. 33, April 25, 1907
(reference).

Regalecus glesne pacificus Wood Jones, in Weber and Beaufort, Fishes
Indo Austral. Archip., vol. 5, p. 92, fig. 23 (portion of photograph),
1930 (lat. 9°16'S., long. 116°8'35"E., south of Sumbawa, 1200 fathoms).

Family Lophotidae

Body elongated, ribbon like. Mouth feebly protractile. Teeth numerous, very small. Skeleton moderately well ossified. Post temporal simple. Ribs small, slender or absent. Pseudobranchiae present. Lower pharyngeals toothless. Air bladder present. Scales absent. Dorsal extends from head to end of tail, front rays prolonged. Anal very short. Caudal small, undivided. Ventrals very small, with 4 or 5 rays, or absent. Vent far postmedian.

Ribbon fishes apparently live in lesser depths than the Trachipteridae. They have a more firmly ossified skeleton and their flesh is more solid.

Analysis of Genera

- a! Front profile of head nearly vertical, straight. Lophotus.
 a² Front of head extended far forwards in advance of snout.

Eumecichthys.

Genus Eumecichthys Regan

Eumecichthys Regan, Proc. Zool. Soc. London, 1907, p. 638. (Type

Lophotes fiski Günther, monotypic.)

Lophotopsis Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 357,

June 1925. (Type Lophotes fiski Günther, monotypic.)

Body very elongate, depth 28. Head length 17, without front projection greater than body depth. Mouth not protractile, hind extensions of premaxillaries with ends attached to front face of vomer. Anal probably absent (end of tail mutilated). Ventral absent.

One species. The unnecessary and exact synonym Lophotopsis Barnard proposed eighteen years after the genus was founded.

Eumecichthys fiski (Günther)

Lophotes fiski Günther, Proc. Zool. Soc. London, 1890, p. 244, pls. 19-

20 (type locality : Cape of Good Hope [Kalk Bay]). — Waite, Records

Canterbury Mus., vol. 1, No. 1, p. , April 25, 1907 (reference).

Lophotopsis fiskii Barnard, Ann. South African Mus., vol. 21, pt. 1, p.

357, pl. 14, fig. 5, June 1925 (compiled).

Genus Lophotus Giorna

Lophotus Giorna, Mém. Acad. Sci. Torin, vol. 16, p. 176, pl. 2, fig. 1,

1805. (Atypic. Type Lophotes cepedii Goldfuss = Leptopus peregrinus

Rafinesque, affixed.). —Oken, Isis, p. 1182, 1817 (on Les Lophotes

Cuvier, Règne Animal, vol. 2, p. 243, 1817, type Le Lophote Lacépède

Cuvier = Leptopus peregrinus Rafinesque, monotypic).

Lophotes Bosc, Nouv. Dict. Hist. Nat., Paris, vol. 18, p. 183, 1817.

(Type le Lophote cépédien Cuvier = Leptopus peregrinus Rafinesque,

monotypic.)

Leptopus Rafinesque, Giorn. Enciclop. Sicilia, vol. 1, p. 16, 1814.

(Type Leptopus peregrinus Rafinesque, monotypic.

Podoleptus Rafinesque, Analyse de la nature, p. 93, 1815. (Type Leptopus

peregrinus Rafinesque, virtually. Podoleptus Rafinesque proposed to

replace Leptopus Rafinesque.)

Body moderately long, depth $6 \frac{1}{5}$ to $6 \frac{1}{2}$. Front profile of head truncate, rises nearly vertically from snout, straight or sometimes sinuous. Head 8, less than body depth. Hind extensions of premaxillaries with their ends free, sliding backwards and forwards on each side of median longitudinal keel. Anal present. Ventral present, not on lower body profile but below and behind pectoral bases.

Lophotus peregrinus (Rafinesque)

Leptopus peregrinus Rafinesque, Giorn. Enciclop. Sicilia, vol. 1, p. 16,
1814 (type locality : Sicily).

Lophotes cepedii Goldfuss, Handb. Zool., vol. 3, pt. 2, p. 72, 1820
(type locality : Mediterranean; on Giorna).

Lophotus lacépède Risso, Hist. Nat. Eur. Merid., vol. 3, p. 293, 1826
(type locality : Nice).

Lophotes cepedianus Valenciennes, Hist. Nat. Poiss., vol. 10, p. 405, pl.

301, Sep. 1835 (type locality :). — Günther,

Cat. Fishes Brit. Mus., vol. 2, p. 312, 1861 (no locality). —

Canestrini, Fauna Italia, Pesci, p. 195, 1875. — Moreau, Poiss,

France, vol. 2, p. 549, 1881 (Nice). — Trimen, Proc. Zool. Soc. London,

1891, p. 483 (Muizenberg, False Bay). — Boulenger, Marine Investig.

South Africa, vol. 1, p. 13, pl. 4, 1900 (Mossel Bay). — Thompson,

Marine Biol. Rep. South Africa, vol. 4, p. 153, 1918 (reference). —

Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 357, pl. 14, fig.

4, June 1925 (Hermanus, South Africa). — Jordan, Evermann, Clark, Rep.

U. S. Comm. Fisher., pt. 2, p. 215, 1930 (compiled).

Lophotus capellei Schlegel

Lophotes capellei Schlegel, Fauna Japonica, Poiss., pts. 7-9, p. 132,

pl. 71, fig. 2, 1845 (type locality : Japan). — Günther, Cat. Fishes

Brit. Mus., vol. 2, p. 312, 1861 (name). — Fowler, Occas. Pap.

Bishop Mus., vol. 8, No. 7, p. 392, 1923 (Laysan); Mem. Bishop Mus.,

vol. 10, p. 88, 1928 (Laysan example).

Lophotes cepedianus (not Valenciennes) Gunther, Rep. Voy. Challenger,

vol. 31, pt. 2, p. 19, pl. 2, figs. k -k', 1888 (1889) (Admiralty

Islands to Japan).

Lophotus cristatus Johnson

Lophotes cristatus Johnson, Proc. Zool. Soc. London, 1863 (April 29),

p. 38 (type locality : Madeira). — McCulloch, Austral. Mus. Mem.,

No. 5, pt. 1, p. 139, June 29, 1929 (Victoria record).

Lophotus guntheri Johnston

Lophotes guntheri Johnston, Proc. Roy. Soc. Tasmania, 1882 (1883), pp.

142, 177 (type locality : North west coast near Emu Bay, Tasmania).

—McCulloch, Austral. Mus. Mem., No. 5, pt. 1, p. 139, June 29, 1929

(reference)

Sub Order Atelaxia

Body elongated, compressed. Branchiostegal rays at upper edge of ceratohyal and inclined upward. Opposing halves of hyoid connected and remote from each other. Lower pharyngeals concealed by skin, much reduced. Palato-quadrates atrophied. No orbitosphenoid. Vertebrae of centra only, without neural or haemal spines or other processes. Caudal divided and part of rays turned upward, lower 3 enlarged and extended backward into long projections.

Family Giganturidae

Body elongate, slender, cylindrical. Snout small. Eye moderate, telescopic. Mouth cleft very broad. Under jaw not protruding in front, extending backward below pectoral base. Strong teeth in jaws and on palatines, none on vomer. Greater part of gill covers posteriorly ventral. Gill opening before and under dorsal. Pseudobranchiae present. No air bladder. No scales. Dorsal rays simple, fin at last third in body. Caudal with lower lobe greatly elongated. Pectoral fan like, dorsal, high, behind and above gill opening.

Deep sea fishes of the Eastern Atlantic.

Genus Gigantura Brauer

Gigantura Brauer, Sitzs. Ber. Gesell. Nat. Marburg, vol. 8, p. 128, 1901.

(Type Gigantura chuni Brauer, monotypic.)

Gigantura chuni Brauer

Gigantura chuni Brauer, Sitzs. Ber. Gesell. Nat. Marburg, vol. 8, p. 128,

1901 (type locality : Gulf of Guinea); Deutsch. Tiefsee Exped. Valdivia,

vol. 15, p. 310, pl. 1, figs. 1-3, 1906 (lat. 2°36'5"N., long. 3°27'5"E.,

Gulf of Guinea, 3513 meters).

Gigantura vorax Regan Ann. Mag. Nat. Hist., Ser. 9, vol. 15, p. 54, 1925

(atlantic).

Gigantura indica Brauer ^{loc.} Regan ~~ibid.~~ cit.

Gigantura gracilis Regan loc. cit.

Family Stylephoridae

Body elongate, compressed. Maxillaries largely close and open mouth. Maxillaries and premaxillaries with long extensions over top of cranium. Mouth small, tube like. Mandible enormous, with little movement. Short slit behind fourth gill arch. Skeleton but little ossified. Four pairs of superior pharyngeals, all but first pair with teeth. Greatly enlarged, pen-shaped basibranchials present, almost long as cranium. Post clavicle of single piece, extends far back. Post temporal simple unforked bone. Dorsal extends from head nearly to caudal fin, rays without cross articulations. No anal. Pectoral base horizontal, fin inclined upward. Ventral present (See Norman 1930).

(o or e ?)

Genus Stylophorus ShawStylophorus Shaw, Trans. Linn. Soc. London, vol. 1, p. 90, 1791. (TypeStylophorus chordatus Shaw, monotypic.)Stylephonus Schneider, Syst. Ichth. Bloch, 1801, p. 519. (TypeStylephorus chordatus Shaw.)

Stylephorus chordatus Shaw

Stylephorus chordatus Shaw, Trans. Linn. Soc. London, vol. 1, p. 90, pl.

6, 1791 (type locality : between Cuba and Martinique).

—Shaw and Nodder, Naturalists Miscellany, vol. 8, pl. 274, 1796 (near cluster of small islands not far from Cuba). —Shaw, General Zool.,

vol. 4, pt. 1, p. 87, pl. 11, 1803 (copied). —Blainville, Journ.

Phys. Chim. Hist. Nat. Paris, vol. 87, p. 60, pl. 1, fig. 1, 18 ,

(compiled). —Cuvier, Règne Animal, vol. 2, p. 221, 1817 (reference).

—Valenciennes, Hist. Nat. Poiss., vol. 10, p. 381, Sep. 1835 (compiled).

—Günther, Cat. Fishes Brit. Mus., vol. 2, p. 306, 1861 (type); Rep. Voy.

Challenger, vol. 22, p. 73, 1887 (type). —Starks, Bull. Mus. Comp.

Zool., vol. 52, No. 2, p. 17, pls. 1-5, 1908 (lat. 2°40'4"S., long. 90°

19.3'W., south of Galapagos, 300 fathoms).

Stylephorus chordatus Regan, Proc. Roy. Soc., B, vol. 96, p. 193, 1924

(Several loc. in Atlantic). —Norman, Discovery Repts., vol. 2, p. 342

(S. Atlantic.) 1930.